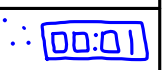
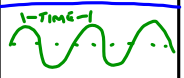
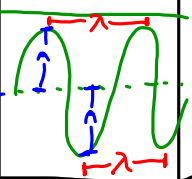
SWBAT: describe the doppler effect

Jan 4-7:20 AM

Concept Sheet

~ 7 rows when we're done...

We'll fill in two terms (rows) today.

Concept	Meaning	Sym-bol	Units	Picture
FREQUENCY	HOW MANY PER UNIT OF TIME FREQ = # / TIME	f, $f = \frac{1}{T}$	hertz, Hz = 1/sec	
PERIOD	HOW MUCH TIME FOR ONE. PERIOD = TIME / #	T, $T = \frac{1}{f}$	seconds sec.	
TRANSVERSE: WHEN THE MEDIUM VIBRATES ACROSS THE DIRECTION THE WAVE TRAVELS.				
LONGITUDINAL: WHEN THE MEDIUM VIBRATES ALONG THE DIRECTION THE WAVE TRAVELS.				
AMPLITUDE	HOW FAR FROM THE MIDDLE.	A	meters, m	
WAVELENGTH	HOW FAR FOR ONE "BACK & FORTH"	LAMBDA, λ	meters, m	
WAVESPEED	DISTANCE OF A WAVE / TIME OF A WAVE	V	meters/second, m/s	

Feb 18-6:50 AM

Welcome!!!

SECA Physics
Thursday 21 April 2016

H. Leslie Grebe

* Pick up:
  - white board, eraser, marker
  - blue concept sheet
  - slip of paper (for later)

Opening Questions:

Ever heard of the Doppler Effect? How would you describe it?

Centering

Sep 7-7:04 AM

Volunteer: Say "Hi"

Louder / quieter

Higher / Lower

Train whistles:

http://www.youtube.com/watch?v=i6Hno_u8FHg

http://www.youtube.com/watch?v=8PpQcDNgGzM

Fire trucks:

http://www.youtube.com/watch?v=imoxDcn2Sgo

What's happening (BESIDES louder and quieter)???

PITCH CHANGED LOWER AT THE END WHEN IT PASSES YOU!

Where else do we see this?

POLICE CARS, HORNS, RACE TRACK

Feb 11-8:46 AM

DOPPLER EFFECT:

Frequency changes when the source and observer move compared to each other!

WHY???

ON WHITE BOARD

http://lectureonline.cl.msu.edu/~mmp/applist/doppler/d.htm

What does it look like when the source is standing still?

CIRCLE WAVES TRAVELING OUT

What happens when the source moves (in front and behind)?

IN FRONT CLOSER, IN BACK BIGGER, FURTHER

http://astro.unl.edu/classaction/animations/light/dopplershift.html

What does the observer experience?

MORE OFTEN TOWARDS

Does it matter which is moving?

TOWARDS: MORE OFTEN

AWAY: LESS OFTEN

Feb 11-8:49 AM

SOUND: LOUD - AMPLITUDE

CLOSER = LOUDER
FARTHER = QUIETER
- DEPEND ON DISTANCE

PITCH → FREQUENCY

HOW OFTEN AIR VIBRATES YOUR EAR

DEPENDS ON MOVING

TOWARDS: HIGHER FREQ.

AWAY: LOWER FREQ.

Apr 25-8:28 AM

Demos:

- My doppler box -- person swinging it doesn't hear much difference?

http://www.animations.physics.unsw.edu.au/jw/doppler.htm

Bike rider...

Train app

http://www.planetseed.com/node/20145

Feb 11-8:59 AM

Explain: What is the Doppler Effect?

Why does it happen?

frequency

waves / vibrations

SENTENCE S

wavelength

away / towards

d

Apr 25-7:25 AM

Daily 3 Questions

* Every day except test/project days
* 3 Questions on the topics of the day
* Main source of daily points
* I am happy to give credit when I have no concerns about someone giving or getting help with the answers.

You can't get your points if you don't have your NAME!!!

Name	Period
1.	
2.	
3.	

Sep 9-7:32 AM

1) What's the name for the effect of a moving sound source?

2) When a sound source is coming towards you the pitch seems
   A) higher
   B) lower
   C) about the same

3)What's one place in life you encounter this effect?

Apr 25-7:25 AM